



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/679,816

10/06/2003

Robert Bristol

ITL.1023US (P16710)

3390

21906

7590

10/10/2006

TROP PRUNER & HU, PC
1616 S. VOSS ROAD, SUITE 750
HOUSTON, TX 77057-2631

EXAMINER

DUDA, KATHLEEN

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,816

Applicant(s)

BRISTOL ET AL.

Examiner

Kathleen Duda

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 34-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-40 are pending in this application.

Election/Restrictions

2. Applicant's election of Group II, claims 11-33 in the reply filed on August 3, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Claims 1-10 and 34-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the replies filed on February 27, 2006 and August 3, 2006.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

Art Unit: 1756

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 11-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Cheng (US 2003/0008246).

Cheng teaches a process of enhancing resist sensitivity using an electric field. Figure 2 depicts the wafer with conductive coating both above and below the photoresist layer. It is taught that the wafer is heated while the electric field is applied (see examples).

6. Claims 20-24 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 63-244622.

JP 63-244622 teaches a process of forming a semiconductor device using a photoresist film. The photoresist is exposed to an electric field during photolithographic processing (see abstract and Figure).

7. Claims 25-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishi (US 2003/0032302).

Nishi teaches a process of forming a photoresist pattern. An electric field is applied while the wafer is being baked (see claim 26).

8. Claims 30-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Templeton (US 2002/0046703).

Templeton teaches a photoresist development process. Paragraph 0045 and Figures 6 and 9 teach that an electric field is applied during development of the photoresist.

Response to Amendment

9. Applicant's response consisted of a couple of remarks which will be addressed below and that the action was incomplete. All of the claims under rejection were examined. Most of the art rejections were made over art presented by Applicant as being prior art.

Applicant argues that Figure 2 does not depict the invention recited in claim 11. Claim 11 recites forming conductive layer over the photoresist and exposing the photoresist to an electric field. Figure 2 of Cheng depicts such a set-up. Claim 12 recites enabling the radiation to pass through. The claims of Cheng teach exposing the resist and paragraph 0057 teaches that materials other than aluminum can be used for the conductive layers. Claim 14 recites spinning on the conductive layer. Spinning on a layer is

commonly known in the art. Several claims in Cheng such as claim 23 recite an alternating current (claim 16).

Claim 20 recites exposing the photoresist to an electric field while exposing the photoresist. JP 63244622 teaches exposing a photoresist layer to an electric field while processing which includes exposure. The dependent claims have been removed from the rejection.

Claim 25 recites that a photoresist is exposed to an electric field while baking. Nishi teaches this recitation in claim 26. Claim 29 recites extreme UV radiation. Claim 26 recites light exposure which includes extreme UV.

Claim 30 recites exposing a photoresist to an electric field during development. Templeton teaches this in paragraph 0045 and figures 6 and 9.

Claims 21-24, 26-28 and 31-33 recite design choices as to the electric field.

Conclusion

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action

and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication should be directed to Examiner K. Duda at (571) 272-1383. Official FAX communications should be sent to (571) 273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff, can be reached at 571-272-1385.

Information regarding the status of an application may be obtained from the Patent Application Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kathleen Duda
Primary Examiner
Art Unit 1756